

4.3 Similar Triangles

GEOMETRY VOCABULARY

Angle Properties



Acute \angle



Obtuse \angle



Complementary \angle s add to 90°



Supplementary \angle s add to 180°



Angles on a line add to 180°



Right \angle



Straight \angle



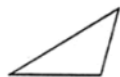
Angles at a point add to 360°



Vertically opposite \angle s are equal

Triangle Properties

\angle sum of a triangle is 180°



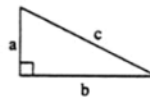
Scalene triangle
— no sides equal
— no \angle s equal



Isosceles triangle
— at least 2 sides equal
— \angle s opposite the equal sides are equal



Equilateral triangle
— 3 sides equal
— 3 \angle s equal (each 60°)

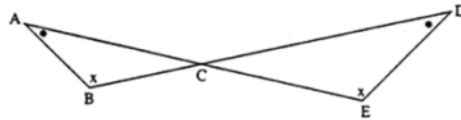


Right triangle
— 1 right angle
— hypotenuse is opposite the right angle
— Property of Pythagoras
 $a^2 + b^2 = c^2$

Similar Figures

2 figures are similar if

- corresponding \angle s are equal
- corresponding sides are in proportion



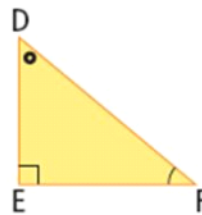
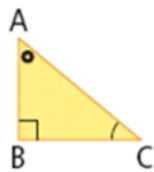
$$\triangle ABC \sim \triangle DEC$$

$$\frac{AB}{DE} = \frac{BC}{EC} = \frac{AC}{DC}$$

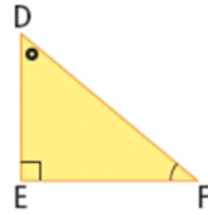
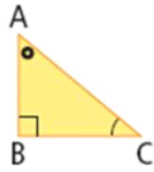
AAA

corresponding sides of
similar figures are in proportion

SIMILAR TRIANGLES



These two triangles are similar. What do you think this means?



corresponding angles:

$\angle A$ and $\angle D$

$\angle B$ and $\angle E$

$\angle C$ and $\angle F$

corresponding sides:

AB and DE

BC and EF

AC and DF

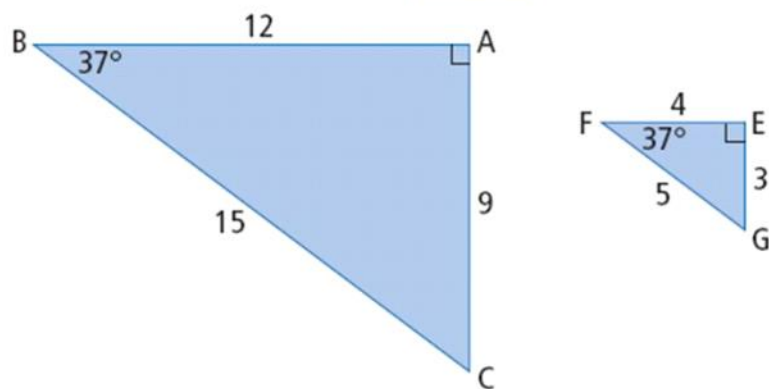
$\triangle ABC \sim$

How can you determine if two triangles are similar?

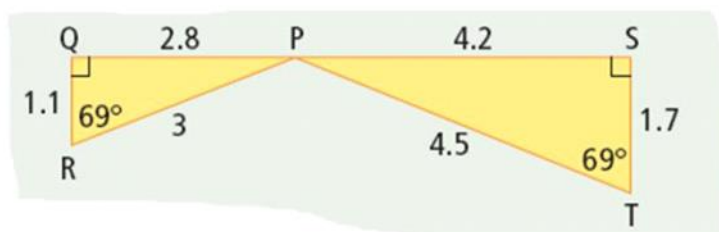
1. The 3 pairs of angles must be equal
2. The 3 pairs of sides must be in proportion (have equal ratios)

One of the 2 conditions is enough to prove similarity.

Determine if $\triangle ABC$ is **similar** to $\triangle EFG$.



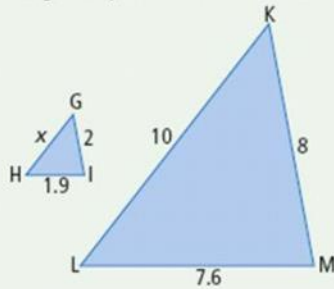
Try this one



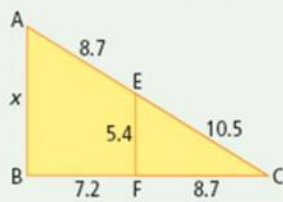
Use Similar Triangles to Determine a Missing Side Length

Solve using a method of your choice.

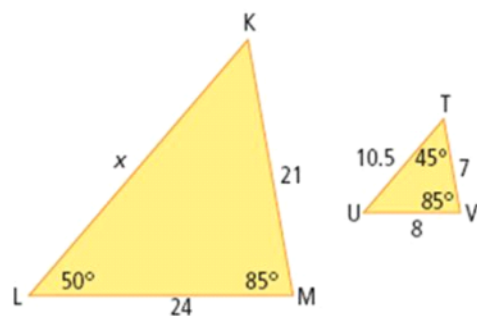
- a) $\triangle GHI$ is similar to $\triangle KLM$. What is the missing side length?
Express your answer to the nearest tenth.



- b) $\triangle ABC$ is similar to $\triangle EFC$. Determine the missing side length.
Express your answer to the nearest tenth.



Try this one- find the missing side length



ASSIGNMENT: p. 150 #4-10, 12, 13, 14